

Answer on Question #37581 - <Math> - <Geometry>

Given 3 points, can one construct a hyperbolic curve thru them using classical geometry of straight edge and compass.

Solution:

Equation of the hyperbolic curve:

$$y = \frac{k}{x^n + b} \quad (1)$$

If we have three points on the hyperbolic curve ($A(x_1, y_1)$; $B(x_2, y_2)$; $C(x_3, y_3)$), we can substitute the value of X and Y of every point in the equation (1) and we will have three equations with three unknowns: k, n, b. If we will solve the equation and find the unknown variables, it is possible to construct the hyperbolic curve using the equation (1) using known variables k, n, b.

Answer: it is possible to construct hyperbolic curve through 3 given points.